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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,965	12/08/2003	Mark M. Leather	0007057-0043	3662

30067 7590 12/23/2005

NICK A. OWENS
328 HEATHER LANE
HOWARD, CO 81233



EXAMINER

TUNG, KEE M

ART UNIT PAPER NUMBER

2671

DATE MAILED: 12/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/730,965

Applicant(s)

LEATHER ET AL.

Examiner

Kee M. Tung

Art Unit

2671

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-18, 20-31 and 33-39 is/are rejected.
- 7) ☒ Claim(s) 6, 19 and 32 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 10/5/05 fails to comply with 37 CFR 1.97(c) because it lacks a statement as specified in 37 CFR 1.97(e) and it lacks the fee set forth in 37 CFR 1.17(p). It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 7, 13, 14, 20, 26, 27, 33 and 39 are rejected under 35 U.S.C. 102(e) as being anticipated by Collodi (2003/0076320).

As per claims 1, 14, and 27, Collodi teaches a unified shader (Fig. 1, programmable shading unit 2) comprising an input interface (receiving vertex data from rasterizer 6 via bus 7) for receiving a packet from a rasterizer (6); a shading processing mechanism (2) configured to produce a resultant value (pixel color 5) from said packet by performing one or more shading operations, wherein said shading operations comprise both texture operations (texture data from texture memory 3) and color operations (interpolated vertex color value, pars 0012 and 0015); and output interface

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(outputting pixel color 5 from shading unit 2 via bus 5) configured to send said value to a frame buffer (not shown, but inherent to have a frame buffer). Therefore, at least claims 1, 14 and 27 are anticipated by Collodi.

As per claims 7, 20 and 33, Collodi teaches a register subsystem (pars 0015 and 0030).

As per claims 13, 26 and 39, Collodi teaches a plurality of additional unified shaders (abstract, one or more shading units and par 0014) connected to said shader wherein said shader and said additional shader are synchronized by a clock mechanism to process shading operations together (in parallel).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4, 5, 17, 18, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collodi (2003/0076320).

The teachings of Collodi are given in previous paragraph of this office action. As per claims 4, 5, 17, 18, 30 and 31, Collodi fails to explicitly teach or suggest a code partition mechanism to partition code configured to instruct said shading mechanism. However, coding refers to executable machine, which is the instruction of a program that was converted from source code to instructions that the computer can understand. Therefore, it would have been obvious to one of ordinary skill in the art at the time the

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present invention was made to implement the teachings of the programmable shading unit of Collodi in order to perform different operations (such as, using a vector value to address texture, cube, calculation of 3 or 4 D dot product value, ...) as taught by Collodi (par 0015). Therefore, at least claims 4, 5, 17, 18, 30 and 31 would have been obvious.

6. Claims 2, 3, 8-12, 15, 16, 21-25, 28, 29 and 34-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collodi (2003/0076320) in view of Zatz (6,864,893).

The teachings of Collodi are given in previous paragraph of this office action. However, Collodi fails to explicitly teach or suggest that the interface is using a valid ready protocol. However, it is old and well known in the art that a valid ready protocol is like a ready-for-data signal that is a control signal showing that a connection exists for data to be transferred to or from another interface device. Moreover, Zatz teaches an interface logic that generates write address and write control signals based on the protocol required by a register file (col. 7, lines 3-9). Therefore, it would have been obvious to one of ordinary skill in the art at the time the present invention was made to combine the teachings of Zatz into the system of Collodi because doing so would provide a system having valid ready signal that serves both address ready and data ready signaling function, thereby enhance system flexibility. Therefore, at least claims 2, 3, 15, 16, 28 and 29 would have been obvious.

As per claims 8-12, 21-25, and 34-38, Zatz teaches a plurality of ALU/memory pairs and constitute a single coherent memory structure, and the memory is a FIFO (col. 2, lines 38-40; col. 5, lines 11-22).

Allowable Subject Matter

7. Claims 6, 19 and 32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter: The prior art made of record fails to anticipate or make obvious the claimed invention. Specifically, the prior art fails to teach or suggest, in combination with the remaining elements and/or step, an input state machine; a plurality of ALU state machine and a plurality of texture machines as recited in claims 6, 19 and 32.

Response to Arguments

9. Applicant's arguments with respect to claims 1-39 have been considered but are moot in view of the new ground(s) of rejection.


Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kee M. Tung whose telephone number is 571-272-7794. The examiner can normally be reached on Tuesday - Friday from 5:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on 571-272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kee M Tung
Primary Examiner
Art Unit 2671

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet	1	of	1
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Complete if Known

Application Number	10/730,965
Filing Date	December 8, 2003
First Named Inventor	LEATHER, Mark M.
Art Unit	2676
Examiner Name	Monestime, Mackly
Attorney Docket Number	7046-49

U.S. PATENT DOCUMENTS

[illegible]

FOREIGN PATENT DOCUMENTS

[illegible]

**Examiner
Signature**

V. Time

Date Considered

12/12/05

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kind Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Notice of References Cited

Application/Control No.

10/730,965

Applicant(s)/Patent Under

Reexamination

LEATHER ET AL.

Examiner

Kee M. Tung

Art Unit

2671

Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2003/0076320	04-2003	Collodi, David	345/426
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)

Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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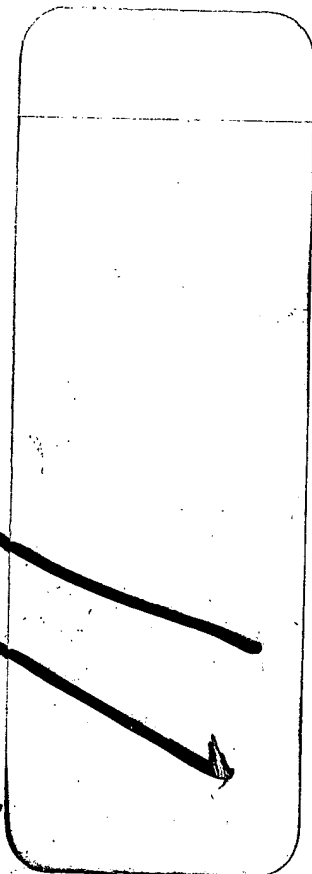
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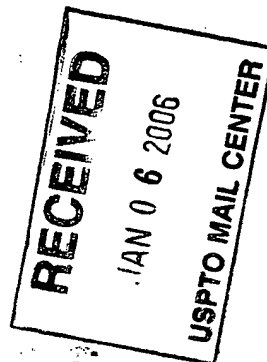


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